



Lies, Deep Fries, and Statistics!!

The search for the truth between public attitudes and public behaviour towards genetically modified foods

by Craig Cormick

Which of these two statements do you think is true?

- About half of the Australian public will not eat genetically modified foods.
- About half of the Australian public will eat genetically modified foods.

The answer is, of course, that both are true, but which one you choose to accept will depend on your ideological perspective.

Consumer surveys are often quoted in the formation of government and industry policy relating to GM foods, but in addition to the common problem of selective use of data, it now also needs to be asked whether consumer surveys actually reveal the whole truth of consumer behaviours.

As has been shown by a study conducted for the European Commission (2001), policy decisions are too often based on perceptions of public perceptions, rather than a solid understanding of what public perceptions actually are.

The study listed ten common misassumptions that did not stand up to solid scrutiny. They included:

- The cause of the problem is that lay people are ignorant about scientific facts.
- The public thinks, wrongly, that GMOs are unnatural.
- The public demands zero risk, and this is not reasonable.
- It's the fault of the BSE crisis: as citizens no longer trust regulators.
- The public is a malleable victim of distorting sensationalist media.

Another study from the University of Illinois found that the assumptions that both opponents and proponents had towards the public's attitudes towards GM foods were more often fallacies than actual (Wansink & Kim, 2001). They included:

- People need to be, and want to be, informed.
- Changing consumer attitudes will change their behaviour.
- The biotechnology controversy will be forgotten.
- People will become biotechnology advocates once they have the facts.

The reason is the sources that policy makers use to receive data, which is often opinion surveys, media coverage, and activist groups, which, when taken together, do not provide an accurate representation of actual public behaviours.

The accuracy of many surveys themselves need to be looked at as well. In a 2002 survey in Australia, Greenpeace asked: 'If you knew a product contained ingredients made from genetically engineered plants or animals, would that make you less likely to buy or not buy?' Sixty eight percent of the respondents agreed with the statement (Taylor Nelson Sofres, 2002). The reference to both GM foods and animals and the broadbanding of responses increases the response rate. Alternatively, a weighted question asked by Biotechnology Australia in 2001 to analyse the effect of weighting, and often quoted by pro-biotechnology advocates, was: 'Would you eat foods that had been genetically modified to be healthier?' Sixty percent of those surveyed said yes (Millward Brown [MB], 2001).

There have been many attitudinal polls towards GM foods conducted around the world that encompass the good, the bad, and the ugly, but as more and more data becomes available on consumer behaviours regarding GM foods, in countries where labelled GM foods are on supermarket shelves, the indication is that most attitudinal surveys might not be obtaining the full answers.

Trying to determine simple answers to consumer behaviours towards GM foods is a complex task, yet there are enough indicators to show that behaviours can be quite different to the findings obtained in most attitudinal surveys. This is very important when considering the amount of agricultural food policy decisions in government and industry that are based on available data.

The holy grail of all surveys into GM foods and the consumer is to best determine what percentage of the public would, or would not, eat GM foods. This is usually done through asking a variation of 'Would you eat GM foods?' or 'Do you have concerns about eating GM foods?' But are these the best relevant questions to ask?

First, let's look at the correlation of concerns and behaviours. Studies undertaken for Biotechnology Australia by the research company Millward Brown (2001, 2003) show that about 75% of consumers in Australia state they have concerns about eating GM foods – a statistic often quoted by anti-GM activists. Yet, the same studies show that about half the Australian population are willing to eat GM foods, despite concerns. This indicates that the relationship between concerns and behaviours is not necessarily a direct and comparable one.

Relativity of Concerns

Next, let's consider the relative ranking of concerns. A study conducted for Biotechnology Australia by the Market Attitude Research Services (2001) looking into food concerns, sought ratings across a five-fold scale of very concerned, quite concerned, little concern and not concerned. While 39% had high concerns about GM foods, it was the smallest high concern compared to 45% high concern about the uses of pesticides in food, 46% high concern about human tampering of foods, and 58% high concern about food poisoning. Similar results were obtained from similar studies conducted by the UK Food Standards Agency (2001), and by Wirthlin (2001) in the USA, yet relativity of concerns is rarely taken into account.

Biotechnology Australia updated this survey question in the study by Millward Brown (2003), asking about GM food concerns relative to environmental concerns and found again that GM food high concerns, at 11%, were lower than high concerns about Pollution at 35%, Nuclear Waste at 26%, the Greenhouse Effect at 17%, and Cloning at 12%. A study into GM food attitudes, undertaken by the Rural Industries Research and Development Corporation, found that there were five food concerns higher than GM foods (Owen, Louviere, & Clark, 2005):

1. Diseases in beef that could pass on to human.
2. Bacteria and disease in foods.
3. Hormones to accelerate growth in animals.
4. Antibiotics in meat.
5. Pesticide residue on fruits and vegetables.
6. **Fruits and vegetables that have been genetically engineered.**

Risk-Benefit Comparisons

Another indicator of consumer acceptance is gained from looking at risk-benefit comparisons, measuring the perceived benefits of GM foods to their perceived risks. Expressed as a ratio of benefits to risks, the Millward Brown (2001, 2003) studies showed that Australians have tended to see increased risks over benefits over the two years. In 2001 the ratio was risks rating 73% and benefits rating 57%, and in 2003 this had changed to 74% risk and 51% benefit.

However, it must be noted that during 2001 the concept of risk in society changed enormously. Following September 11, and the subsequent bombings in Bali, Madrid, and London, the world suddenly became a riskier place to live in and risk rankings rose on most surveys. Similarly, while perceptions of risk towards GM foods have risen in Australia, levels of concern have not risen.

Firstly, let's look at the impact of actual choice versus hypothetical choice. Before GM labelling came into force in Australia, in December 2001, a tracking study conducted by Quantum Market Research (2000) found that 46% of the population would not buy GM foods, even if they were labelled. But that figure dropped to 41% in a subsequent Quantum (2002) survey, indicating that the matter of choice and trust appeared to be influential in attitude formation, and that a labelling regime can have some impact on public attitudes.

While six different GM food types are approved for consumption in Australia: cotton oil, canola, corn, soy, sugar, and potato - the majority GM commodity is soy or canola. There have been about a dozen products on supermarket shelves that are

labelled as containing GM ingredients. These include donuts, chocolate cake, cake icing, and several types of chicken loaf and frozen chicken.

However, as highly-refined products that have no trace of novel DNA in the final food are exempt from labelling in Australia, most oils do not require labelling, and fast foods such as those deep-fried in these oils do not therefore need to be labelled either. This causes some over-heated debate about the accuracy of GM food labelling, but the changes in attitude do indicate a diminution in rejection of GM foods when they were labelled.

Understanding

Next, we should look at public understanding of GM foods. In the Millward Brown (2003) study, people were asked which of the following modifications were genetic modifications of food.

| Modification | % Who View It as GM |
|---|---------------------|
| The Change of Grain Crops to Make Them Pest Resistant | 78% |
| Foods Produced Using Gene Technology Processes | 74% |
| Food Made from Animals Fed with GM Stock Feed | 66% |
| The Change of the Flavour in Food | 52% |
| Flavour or Nutritional Enhancements in Food | 52% |
| Colours in Food | 35% |
| Food with Preservatives | 32% |
| Food Grown with the Use of Pesticides | 30% |
| Food Grown Using Fertilizers | 26% |

So a minimum of about 30% of the population believe that most any modification to foods makes them genetically modified. This is no surprise when we consider that we've

never been at a time in our society when we have been so removed from agricultural production as we are now, with an increasingly urbanised society whose experience and understanding of food is restricted to supermarket shopping, and we have little knowledge of how food is actually produced.

It also raises the question, if so many people view these common modifications as genetic modifications, why isn't that being reflected in any adverse consumer behaviour towards these foods?

Let's look a little closer at those donuts and chocolate cakes and chicken loaf that really are genetically modified and are labelled as such. First, we need to look a little bit at the details of the labelling. A typical label might read, Ingredients: sugar, water, wheat flour, vegetable oil, egg, cocoa powder, fresh cream, thickener, milk solids, emulsifiers, salt, corn starch (genetically modified).

According to the supermarket chains, although they are often on the receiving end of anti-GM campaigns about their foods, there has been little to no diminution in sales of those foods that are labelled as containing GM ingredients.

Could this be explained by consumers simply not being able to find the fact that the food has GM ingredients on the label? Perhaps. But at the deli counter in Woolworths, all across Australia, there have usually been two or three types of sliced chicken loaf that have been clearly labelled 'contains genetically modified soy' on a plastic label, standing up by the meat. It is clear and prominent, and I have made it a habit of always asking the person in the deli, wherever I travel, whether anybody comments or complains about the GM ingredients. Invariably, I'm met with a blank look and the response

that nobody seems very concerned about it.

So why is that – if so many people state that they are concerned about GM foods?

The Importance of Consumer Segments

An indication of why has been provided by Environics International (2000), a Canadian company who has done some cluster graphs on consumer attitudes to food, and whose research translates well into Australia. The general finding of its research showed that attitudes towards GM foods are more driven by general attitudes towards food than attitudes to gene technology.

They have defined six distinct consumer segments:

- *Food Elites* – who prefer to eat organics and the best foods and will pay for them (about 8% of the population).
- *Naturalists* – who prefer to buy from markets rather than supermarkets (about 16%).
- *Fearful Shoppers* – who have concerns about most foods – predominantly elder consumers (about 28%).
- *Nutrition Seekers* – who treat food as fuel for the body (about 20%).
- *Date Code Diligent* – who read labels, but generally only look at use by date and fat content – predominantly younger women – (about 13%).
- *The Unconcerned* – who don't really care too much what they eat – predominantly younger men – (about 13%).

Those top three are concerned about many food issues and also concerned about GM foods. The bottom three have specific concerns only, or aren't too concerned about foods and are not concerned about GM foods.

Focus group responses in a study conducted by Eureka Strategic Research (2005), showed that when people were served a cake that may contain some GM soy, typically responses were along the lines that since cakes weren't that good for you respondents wouldn't mind eating them. Or:

"I think 2% [of the product being GM] isn't a whole lot that would do anything wrong."

If we look at those products that are labelled GM on supermarket shelves in Australia, it is apparent that they are the type of foods most consumed by the bottom three categories of consumers. If a GM soy milk was introduced to the market, which would have a higher appeal to the first three categories, I suspect consumer reaction would be very, very different.

Understanding the different nature of segments and understanding that there is not one single 'public' is vital to understanding consumer behaviours.

Focus Group Studies

A useful supplement to survey work is focus groups, which are often able to drill much deeper into drivers of attitudes. In a series of focus groups conducted by Millward Brown (2003), for instance, while acceptance and rejection of GM foods stood at about 50:50, as it had in 2001, there had been a major change in the cause of rejection. In 2001 the major stated cause was health and medical concerns, and yet in 2003 that had been replaced by no apparent benefit.

It can be argued, of course, as some anti-GM activists do argue, that people are eating GM foods only because they aren't aware they're eat-

ing them. But focus group respondents actually showed a drop in concerns when they were told they had been eating GM foods for several years.

Another major finding from focus groups is that there are five key factors of influence in determining acceptance or rejection of GM foods and crops. (MB, 2001, 2003; Eureka Strategic Research, 2005) They are:

- *Information* - a level of understanding of the technology and what it can and cannot do, which has to be provided from a credible source.
- *Regulation* - a level of confidence that effective regulation exists to protect humanity and the environment.
- *Consultation* - a feeling that the public has had some input to the development of the technology.
- *Consumer choice* - the ability for an individual to accept or reject each application of the technology.
- *Consumer benefit* - a clear individual and societal benefit from each application.

All five of these need to be met, however, and currently GM foods do not rate well on information and fall down on consumer benefits.

Some surveys, such as that conducted by the Rural Industry Research and Development Corporation, quoted earlier, have sought to capture a deeper level attitude and behaviour linkage (Owen, Louviere, & Clark, 2005). Its survey used quite a complex set of variables to quantify how much a person would pay for a GM or non-GM potato, potato chips, or milk. The study also found distinct consumer segments, definable by traits such as health, attitude to new products, and price sensitivity. It also found that if there were no benefits to the consumer, people

would require between a 30 to 50% discount to purchase a GM product. Potential health benefits, however, increased acceptance of the GM foods, confirming the focus group findings above.

There are many more factors we could look at too, such as the impact of anti- and pro-GM misinformation on consumer behaviour, food safety scares and gender differences, all of which have some impact upon behaviours.

What Consumers Say Versus What They Do

Having looked at lots of survey results and the way that they are interpreted, and questioned the findings of many of them, we now have to ask: are we any closer to that holy grail? We know that what consumers say and what consumers do can be different things, such as the number of people who say they would prefer to eat organic foods far outweighs the numbers who actually do. It's not that consumers actively tell lies in surveys as much as they've often given an answer that is consistent with a preferred or idealised action, rather than an actual one.

Consumers are peculiar animals, and despite many concerted studies, we are still far from understanding them well. Yet, we know from animal behaviour studies that observing animals in zoos and laboratories can be different from how they behave in their natural environment.

Perhaps that's where we need to go next, into the natural habitats of consumers - the supermarkets - undertaking more ethnographic studies, based on our knowledge of existing consumer segments from attitudinal studies, watching behaviour rather than asking about it. How do consumers really behave, in super-

markets, when faced with GM foods that are labelled, and have price and product differences?

That is the question we need to be feeding into agricultural food policy formulation to ensure that decisions that are being made are in line with actual consumer behaviours.

The indications from Australia are that when asked in surveys consumers are only marginally supportive of GM foods - yet when in the supermarkets, considering the types of foods that are currently GM, there is only marginal rejection of those foods.

For More Information

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- Craig Cormick (Craig.cormick@biotechnology.gov.au) is Manager of Public Awareness, Biotechnology Australia, Canberra Australia. Biotechnology Australia, the Government agency responsible for co-ordinating biotechnology issues in Australia, has been conducting comprehensive surveys since its inception in 1999, tracking changing attitudes to GM foods and crops as well as health and medical applications in biotechnology. www.biotechnology.gov.au*